

# FAA news

AVIATION SAFETY FROM COVER TO COVER

## RUNWAY INCURSION IS NO ACCIDENT

F E B R U A R Y 2 0 0 0

# **“Only YOU Can Prevent Runway Incursions”**

## Nine Points of Safe Ground Operations

1. Review airport layouts as part of preflight planning, during cruise, before descent, and while taxiing.
2. Know and understand airport signage.
3. Read back all runway crossing and/or hold short instructions.
4. Review Notices to Airmen (NOTAM) for runway/taxiway closures and construction areas.
5. Request progressive taxi instructions when unsure of the taxi route.
6. Check for traffic before entering any runway or taxiway.
7. Turn on aircraft lights while taxiing.
8. Clear the active runway on rollout as quickly as possible, then wait for taxi instructions before further movement.
9. Study and use proper phraseology found in the *Aeronautical Information Manual* when responding to ground control instructions.

# RUNWAY INCURSION IS NO ACCIDENT

by H. Dean Chamberlain

**F**ive simple words, but together they define one of the FAA's hottest safety topics. Although most runway incursions do not result in an accident, the potential is always there, especially in low visibility situations. In most cases, an air traffic controller, the pilot, or a person on the ground resolve the incident before it results in an accident. But the fact that the number of runway incursions has been increasing over the years has caused FAA Administrator Jane Garvey to make runway incursions one of the agency's top priority safety items.

"I am concerned about the number of runway incursions because according to the National Transportation Safety Board and FAA data, runway incursions continue to increase. There has been a 73 percent increase in the number of reported incidents from 1993 through last year. There were 186 reported in 1993. In 1998, that number was 325. The rate increased from 0.30 per 100,000 airport operations to 0.52 incursions per 100,000 airport operations. We must reduce that rate," Garvey said.

## National Runway Safety Program

In 1996, FAA established the

Runway Incursion Program office. The name has since been changed to the National Runway Safety Program, however, program responsibilities remain as initially outlined. The Program's task is to oversee and coordinate all of the FAA's runway incursion prevention efforts. The Program's goal, established in 1998, is to reduce the number of runway incursions by 15 percent of the 1997 baseline of 292 by the end of calendar year 2000. To accomplish that goal, the Runway Safety Program is focusing its efforts on three major operational areas. Those are air traffic control (ATC) operational errors and deviations, pilot deviations, and vehicle and pedestrian deviations.

According to the former Runway Safety Program Manager Sue O'Brien, reducing runway incursions requires a concentrated effort on the part of all concerned; FAA, the aviation community, and all ground support personnel. The Runway Safety Program, consisting of representatives from Air Traffic Control, Airports, and Flight Standards, directly addresses awareness, training, and education initiatives while working hand-in-hand with the Runway Incursion Reduction Program on technological solutions. Additionally, the program promotes awareness at numer-

ous aviation seminars, activities, and exhibits throughout the year.

## Some Definitions

For those not familiar with the term, *runway incursion*, and its potential risks, one of the worst aviation accidents in history resulted from a runway incursion when two Boeing 747 jumbo jets collided at Tenerife, Canary Islands in 1977. Because of fog and missed communications one of the B-747's started its takeoff roll while the other was on the runway. In the resulting collision, 583 people died.

As the number of aircraft operations increases, the potential for a runway incursion accident increases with any mistake made by a pilot, air traffic controller, or vehicle operator during operations conducted within the runway safety area.

If the term *runway safety area* (RSA) is new for some readers, the *Aeronautical Information Manual* (AIM) Pilot-Controller Glossary contains the complete term. In part, the AIM defines *runway safety area* as a defined surface surrounding the runway prepared, or suitable, for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. The dimensions



of the RSA vary and can be determined by using the criteria contained within Advisory Circular (AC) 150/5300-13, Airport Design, Chapter 3. Figure 3-1 in AC 150/5300-13 depicts the RSA.

FAA defines *runway incursion* (in part) as, "Any occurrence at an airport involving an aircraft, vehicle, person, or object on the ground that creates a collision hazard or results in a loss of separation with an aircraft taking off, intending to takeoff, landing, or intending to land."

To complete our definitions, FAA defines an *occurrence* as:

A. A pilot deviation is any action of a pilot that results in violation of a Federal Aviation Regulation.

B. An operational error is an occurrence attributable to an element of the ATC system which results in: 1) less than the applicable separation minima between two or more aircraft, or between an aircraft and obstacles. Obstacles include vehicles, equipment, personnel on runways; or 2) an aircraft landing or departing on a runway closed to aircraft after receiving air traffic authorization.

C. A vehicle or pedestrian deviation results from a vehicle operator, non-pilot operator of an aircraft, or pedestrian who deviates onto the movement area including the runway without ATC authorization.

Now that we all have a basic understanding of what a runway incursion is, let's look at some things everyone can do to combat the problem.

## How to Stop Runway Incursions

First, a big picture technical solution: FAA is in the process of deploying an Airport Movement Area Safety System (AMASS) at major airports. AMASS is a software program designed to pro-

vide more surface information for air traffic controllers (ATC). AMASS is designed to use the current Airport Surface Detection Equipment (ASDE) radar to monitor the airport surface areas. AMASS would alert an air traffic controller if an aircraft, for example, taxied onto a runway. But ATC's ability to better "see" aircraft and vehicles within the runway safety area and its taxiways and runways in low visibility conditions with surface radar is only part of the solution.

In addition to surface radar, FAA is also looking at other technical systems such as ground loop systems, GPS transponder based systems, and similar technologies to detect potential runway incursions. FAA is also looking at better airport design and operational procedures.

There are also non-technological alternatives. The simplest answer is for air traffic controllers, pilots, vehicle operators, and yes, pedestrians, to don't do anything to cause a runway incursion. Runway incursions are a people problem. Whether an air traffic controller makes a mistake and puts two aircraft on the same runway, or an airline or general aviation pilot lands on the wrong runway or taxis onto a runway without authorization or by mistake, or a construction worker drives across an active runway, people are involved in and cause this problem, and until people stop making these kinds of mistakes, we are going to have runway incursion problems. One of the more common factors associated with runway incursions is pilots or vehicle operators entering the active runway without air traffic authorization.

According to Tom McSweeney, Associate Administrator for Regulation and Certification, "I think two of the best answers to solving this problem are training

and education. Our Flight Standards Service is responsible for pilot training and certification and how those pilots operate their aircraft once they are certificated. Whether they are flying a simple, single-engine, two-place training aircraft, or if they are flying a state of the art Boeing 777, they have had to meet a Flight Standards training requirement. Working with the national Runway Safety Program office, Flight Standards is looking at how training can become part of the solution.

"Education is another part. For example, our Aviation Safety Program reaches thousands of pilots, maintenance technicians, and the general public across America every year. In conjunction with the Runway Safety Program office, we are going to work with our Aviation Safety Inspectors and our Aviation Safety Program Managers to increase the safety awareness of everyone who works on or operates a vehicle or aircraft on a runway safety area about the importance of this problem. I want to thank the national Runway Safety Program office for its support in providing guidance and materials, pamphlets, and other materials to support our mutual efforts. I also want to thank the many aviation industry groups that are also working on this vitally important safety project.

"We will also work within our certification system to make sure everyone who is preparing for any type of FAA certificate that will give that person access to an airport operating area is made aware of the danger of runway incursion. In fact, Flight Standards has written a special runway incursion letter that will be sent to all certificated flight instructors and designated pilot examiners. The letter outlines the problem and the important role flight instructors and examiners play in



reducing the number of runway incursions," McSweeney said.

Training and education are part of the solution. The hardest part of the job is getting the many training and education materials being produced through the efforts of the Runway Safety Program office out to those who need it the most. Although, it may take some time to reach the new people entering aviation, that may be the easiest part of the job. The question of how can the FAA reach those airmen already certificated or those non-airmen operating on airports today such as support of construction employees is one we must constantly work on.

The special flight instructor and designated pilot examiner letter is a start. But since many certificated pilots only see a flight instructor when the pilot has to take his or her required flight review, there may be some delay in reaching these pilots through CFI's. And some people who may be involved in runway incursions never have to do any type of training or recurrent training such as a new construction worker repairing a taxiway at a small airport. So what else can be done?

One way is through the FAA's Aviation Safety Program. The Program's Safety Program Managers (SPM) will be discussing this hot topic in their regular safety meetings and newsletters, but the problem they face is not every airmen attends FAA safety meetings. In fact some SPM's say, "Those who need us the most, don't attend our meetings."

So what is the answer? Initial airmen training and recurrent training is one answer. Another is using the FAA's Aviation Safety Program to reach those who are already involved in aviation and attend safety meetings. Another approach is through the various

membership groups and safety organizations such as the Aircraft Owners and Pilots Association (AOPA) and the various maintenance organizations such as the Professional Aviation Maintenance Association (PAMA) and others. These groups can reach their members through their publications and other internal information channels such as internet sites, meetings, conventions, and training sessions.

### **Sharing the Responsibility**

But all of the techniques designed to reach those at risk for committing a runway incursion and the various aviation membership groups discussed can't do it all. They and FAA need your help and the help of everyone in aviation. Because one of the most effective ways to reduce runway incursions is through one on one discussions about the problem with pilots and others who operate on or about a runway safety area. Pilots, maintenance technicians, vehicle operators, airport managers, and anyone who is involved in airport operations should talk about the problem and discuss ways to reduce or better yet avoid the problem by discussing this issue with their friends, coworkers, employees, friends, students, and anyone else who has access to a runway safety area.

Some safety points to live by include only taxiing or driving along approved access areas; taking off and landing only on the correct runway when authorized by ATC; if operating on a towered airport with an air traffic controller on duty, to only operate in accordance with ATC instructions; and if, at anytime, an instruction or clearance is not clearly understood to ask for verification or clarification. If someone is operating into an unfamiliar airport,

that person should have studied the airport layout before approaching the field for landing. One of the best ways to do this for large, complex airports is by reviewing that airport's instrument approach chart. And since it is hard at times to see some taxiway routes and markings at large airports from the cockpit of a small general aviation type aircraft, pilots unfamiliar with the local operating environment should ask ATC for detailed progressive taxi instructions before starting to taxi in from landing or before taxiing out for takeoff.

Other important ideas include contacting ATC any time you become lost or disorientated on an airport; to maintain a sterile cockpit by avoiding unnecessary conversations within the cockpit; if in a small aircraft while taxiing, taking off, and landing, to keep a good look outside the aircraft for other aircraft operating within the vicinity. Use your aircraft lighting to the extent possible to make your aircraft visible to others operating in the air or on the ground.

If you can't observe the approach area of a runway you have been cleared onto and told to hold, you should maintain a careful listening watch on the frequency for that landing runway. There has been more than one case of an aircraft landing over an aircraft holding on the runway for takeoff.

Because general aviation pilots are involved in many of the runway incursions, they as a group need to be particularly alert while operating on an airport at night after a long day of working. Fatigue and lack of sleep can increase your risk of loss of situational awareness, especially on a large, complex field at night. One way to combat this is to know and understand the relatively new airport signage that has been in-



stalled at most airports in the last few years. Pilots also need to re-view the current runway and taxiway markings used on today's airports. The *Aeronautical Information Manual* (AIM) shows all of the current runway markings and signage.

### When in Doubt — Ask!

Equally important for all pilots to know and understand are the meanings of the different types of hold short lines on an airport. For example, what does the double dashed lines mean at a hold short line when approaching them from the runway side?

The lines show that you are expected to cross the dashed lines when exiting the runway.

As noted in the FAA's Runway Safety Program's internet website and included in the letter to all flight instructors and designated pilot examiners, "Historical data clearly demonstrate that runway incursions most likely to cause accidents generally occur at complex, high volume airports. These airports are characterized by parallel/intersecting runways; multiple taxiway/runway intersections; complex taxi patterns; and the need for traffic to cross active runways. The analysis of historical data also shows that a disproportionately large number of runway incursions involving general aviation pilots result from misunderstood controller instructions, confusion, disorientation, and/or inattention."

Based upon this data, general aviation pilots need to be particularly careful when operating into unfamiliar, complex airports. Since many general aviation pilots normally fly single-pilot, they don't have a copilot to back them up with the communications or to look up the airport diagram while taxiing, so single-pilot aircraft need to be operated very carefully in the above type situations.

The old adage still applies, "When in doubt: Ask."

### Who Can Prevent Runway Incursions?

The same is true of anyone driving a vehicle on an airport movement area who is not familiar with the airport and its safety procedures. In the case of vehicles, they should always display an appropriate safety signal. Since many of the incursion incidents occur in low light and low visibility situations, that signal should normally be a rotating or flashing safety light. Vehicles operating within the runway safety area must be equipped with two-way radio that allows communication with the designated ATC section having jurisdiction over the runway safety area before the vehicle is driven on or across that area, taxiway or runway. At some airports, there are designated vehicle operating areas and lanes that are marked so pilots should be alert for vehicles in those areas. Vehicles in such designated areas may or may not have radio communications with ATC.

For those who operate on airport movement areas, taxi ways, or runways, when was the last time you reviewed the light signals for loss communications or no communications while driving on an airport? If you have never seen or heard of the surface light signals they exist and you should review them in the AIM. In fact, one of the FAA's runway incursion project decals has the light signal colors printed with their respective meanings. The self-sticking decal is designed to be mounted in any type of surface vehicle.

Now if there were some way to keep deer and the occasional stray cow from wandering across airport operating areas. Deer don't know how to read, nor do they understand the danger of crossing a runway in front of a

landing aircraft. Plus it is kind of hard to have a one on one conversation with a deer, but people wandering across an airport operating area or runway is another matter. People should know better. If you know someone who does wander around an airport like a lost deer, whether on foot or in an aircraft or vehicle, please discuss this important runway incursion safety issue with them. The life you might save just might be yours.

To paraphrase a famous American bear, "Only you can prevent runway incursions."



*For more information on this important topic, you can review both the Aeronautical Information Manual for recommended safe operating procedures and the national Runway Safety Program's website at [http:// www.faa.gov /ats/ato/ato102](http://www.faa.gov/ats/ato/ato102).*

*Front cover photo is courtesy of Piper Aircraft and shows Boston Logan International Airport, Massachusetts.*

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# PROCEED WITH CAUTION!

The following are some of the common terms taken from the *Aeronautical Information Manual's* Pilot-Controller Glossary that have the potential to be involved in incursion type incidents:

**BACK-TAXI-** A term used by air traffic controllers to taxi an aircraft on the runway opposite to the traffic flow. The aircraft may be instructed to back-taxi to the beginning of the runway or at some point before reaching the runway end for the purpose of departure or to exit the runway.

**CLEAR OF THE RUNWAY-**

a. A taxiing aircraft, which is approaching a runway, is clear of the runway when all parts of the aircraft are held short of the applicable holding position marking.

b. A pilot or controller may consider an aircraft, which is exiting or crossing a runway, to be clear of the runway when all parts of the aircraft are beyond the runway edge and there is no ATC restriction to its continued movement beyond the applicable holding position marking.

c. Pilots and controllers shall exercise good judgement to ensure that adequate separation exists between all aircraft on runways and taxiways at airports with inadequate runway edge lines or holding position markings.

**HOLD-SHORT POINT-** A point on the runway beyond which a landing aircraft with a LAHSO clearance is not authorized to proceed. This point may be located prior to an intersecting runway, taxiway, predetermined point, or approach/departure flight path.

**LAHSO-** An acronym for "Land and Hold Short Operation." These operations include landing and holding short of an intersecting runway, a taxiway, a predetermined point, or an approach/departure flight path.

**MOVEMENT AREA-** The runways, taxiways, and other areas of an airport/heliport which are utilized for taxiing/hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports/heliports with a tower, specific approval for entry onto the movement area must be obtained from ATC.

**PROGRESSIVE TAXI-** Precise taxi instructions given to a pilot unfamiliar with the airport or issued in stages as the aircraft proceeds along the taxi route.

**RUNWAY-** A defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees; e.g., Runway 1, Runway 25.

**TAXI INTO POSITION AND HOLD-** Used by ATC to inform a pilot to taxi onto the departure runway in takeoff position and hold. It is not authorization for takeoff. It is used when takeoff clearance cannot immediately be issued because of traffic or other reasons.



# THE FOLLOWING INFORMATION AERONAUTICAL INFORMATION PROCEDURES WITH

## 4-3-18. TAXIING

**a. General:** Approval must be obtained prior to moving an aircraft or vehicle onto the movement area during the hours an Airport Traffic Control Tower is in operation.

1. Always state your position on the airport when calling the tower for taxi instructions.

2. The movement area is normally described in local bulletins issued by the airport manager or control tower. These bulletins may be found in FSS's, fixed base operators offices, air carrier offices, and operations offices.

3. The control tower also issues bulletins describing areas where they cannot provide ATC service due to nonvisibility or other reasons.

4. A clearance must be obtained prior to taxiing on a runway, taking off, or landing during the hours an Airport Traffic Control Tower is in operation.

5. When ATC clears an aircraft to "taxi to" an assigned takeoff runway, the absence of holding instructions authorizes the aircraft to "cross" all runways which the taxi route intersects except the assigned takeoff runway. It does not include authorization to "taxi onto" or "cross" the assigned takeoff runway at any point. In order to preclude misunderstandings in radio communications, ATC will not use the word "cleared" in conjunction with authorization for aircraft to taxi.

6. In the absence of holding instructions, a clearance to "taxi to" any point other than an assigned takeoff runway is a clearance to cross all runways that intersect the taxi route to that point.

7. Air traffic control will first specify the runway, issue taxi instructions, and then state any required hold short instructions, when authorizing an aircraft to taxi for departure. This does not authorize the aircraft to "enter" or "cross" the assigned departure runway at any point.

### **NOTE-**

Air traffic controllers are required to obtain from the pilot a readback of all runway hold short instructions.

8. Pilots should always read back the runway assignment when taxi instructions are received from the controller. Controllers are required to confirm the runway hold-short assignment when they issue taxi instructions.

**b.** ATC clearances or instructions pertaining to taxiing are predicated on known traffic and known physical airport conditions. Therefore, it is important that pilots clearly understand the clearance or instruction. Although an ATC clearance is issued for taxiing purposes, when operating in accordance with the FAR's, it is the responsibility of the pilot to avoid collision with other aircraft.



# INFORMATION IS TAKEN DIRECTLY OUT OF THE OPERATION MANUAL'S RECOMMENDED OPERA- TIONS AND PARAGRAPHS AS NOTED:

Since "the pilot-in-command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft" the pilot should obtain clarification of any clearance or instruction which is not understood.

## **REFERENCE-**

*AIM, GENERAL,*

1. Good operating practice dictates that pilots acknowledge all runway crossing, hold short, or takeoff clearances unless there is some misunderstanding, at which time the pilot should query the controller until the clearance is understood.

## **NOTE-**

Air traffic controllers are required to obtain from the pilot a readback of all runway hold short instructions.

2. Pilots operating a single pilot aircraft should monitor only assigned ATC communications after being cleared onto the active runway for departure. Single pilot aircraft should not monitor other than ATC communications until flight from Class B, Class C, or Class D surface area is completed. This same procedure should be practiced from after receipt of the clearance for landing until the landing and taxi activities are complete. Proper effective scanning for other aircraft, surface vehicles, or other objects should be continuously exercised in all cases.

3. If the pilot is unfamiliar with the airport or for any reason confusion exists as to the correct taxi routing, a request may be made for progressive taxi instructions which include step-by-step routing directions. Progressive instructions may also be issued if the controller deems it necessary due to traffic or field conditions; i.e., construction or closed taxiways.

c. At those airports where the U.S. Government operates the control tower and ATC has authorized noncompliance with the requirement for two-way radio communications while operating within the Class B, Class C, or Class D surface area, or at those airports where the U.S. Government does not operate the control tower and radio communications cannot be established, pilots shall obtain a clearance by visual light signal prior to taxiing on a runway and prior to takeoff and landing.

d. The following phraseologies and procedures are used in radiotelephone communications with aeronautical ground stations.

**1. Request for taxi instructions prior to departure:** State your aircraft identification, location, type of operation planned (VFR or IFR), and the point of first intended landing.

## **EXAMPLE-**

Aircraft: "Washington ground, Beechcraft One Three One Five Niner at hangar eight, ready to taxi, I-F-R to Chicago."

Tower: "Beechcraft One Three One Five Niner, Washington ground, taxi to runway three six, wind zero three zero at two five, altimeter three zero zero four."

or

Tower: "Beechcraft one three one five niner, Washington ground, runway two seven, taxi via taxiways charlie and delta, hold short of runway three three left."

Aircraft: "Beechcraft One Three One Five Niner, hold short of runway three three left."

**2. Receipt of ATC clearance:** ARTCC clearances are relayed to pilots by airport traffic controllers in the following manner.

## **EXAMPLE-**

Tower: "Beechcraft One Three One Five Niner, cleared to the Chicago Midway Airport via Victor Eight, maintain eight thousand."

Aircraft: "Beechcraft One Three One Five Niner, cleared to the Chicago Midway Airport via Victor Eight, maintain eight thousand."



**NOTE-**

Normally, an ATC IFR clearance is relayed to a pilot by the ground controller. At busy locations, however, pilots may be instructed by the ground controller to "contact clearance delivery" on a frequency designated for this purpose. No surveillance or control over the movement of traffic is exercised by this position of operation.

**3. Request for taxi instructions after landing:** State your aircraft identification, location, and that you request taxi instructions.

**EXAMPLE-**

Aircraft: "Dulles ground, Beechcraft One Four Two Six One clearing runway one right on taxiway echo three, request clearance to Page."

Tower: "Beechcraft One Four Two Six One, Dulles ground, taxi to Page via taxiways echo three, echo one, and echo niner."

or

Aircraft: "Orlando ground, Beechcraft One Four Two Six One clearing runway one eight left at taxiway bravo three, request clearance to Page."

Tower: "Beechcraft One Four Two Six One, Orlando ground, hold short of runway one eight right."

Aircraft: "Beechcraft One Four Two Six One, hold short of runway one eight right."

### **4-3-19. TAXI DURING LOW VISIBILITY**

**a.** Pilots and aircraft operators should be constantly aware that during certain low visibility conditions the movement of aircraft and vehicles on airports may not be visible to the tower controller. This may prevent visual confirmation of an aircraft's adherence to taxi instructions. Pilots should, therefore, exercise extreme vigilance and proceed cautiously under such conditions.

**b.** Of vital importance is the need for pilots to notify the controller when difficulties are encountered or at the first indication of becoming disoriented. Pilots should proceed with extreme caution when taxiing toward the sun. When vision difficulties are encountered pilots should immediately inform the controller.

**c.** Advisory Circular 120-57, Surface Movement Guidance and Control System, commonly known as SMGCS (pronounced "SMIGS") requires a low visibility taxi plan for any airport which has takeoff or landing operations in less than 1,200 feet runway visual range (RVR) visibility conditions. These plans, which affect aircrew and vehicle operators, may incorporate additional lighting, markings, and procedures to control airport surface traffic. They will be addressed at two levels; operations less than 1,200 feet RVR to 600 feet RVR and operations less than 600 feet RVR.

**NOTE-**

Specific lighting systems and surface markings may be found in Taxiway Lights and Taxiway Markings.

### **4-3-20. EXITING THE RUNWAY AFTER LANDING**

The following procedures should be followed after landing and reaching taxi speed.

**a.** Exit the runway without delay at the first available taxiway or on a taxiway as instructed by ATC. Pilots shall not exit the landing runway onto another runway unless authorized by ATC. At airports with an operating control tower, pilots should not stop or reverse course on the runway without first obtaining ATC approval.

**b.** Taxi clear of the runway unless otherwise directed by ATC. In the absence of ATC instructions the pilot is expected to taxi clear of the landing runway even if that requires the aircraft to protrude into or cross another taxiway, runway, or ramp area. This does not authorize an aircraft to cross a subsequent taxiway/runway/ramp after clearing the landing runway.

**NOTE-**

The tower will issue the pilot with instructions which will normally permit the aircraft to enter another taxiway, runway, or ramp area when required to taxi clear of the runway.

**c.** Stop the aircraft after clearing the runway if instructions have not been received from ATC.

**d.** Immediately change to ground control frequency when advised by the tower and obtain a taxi clearance.

**NOTE-**

[1] The tower will issue instructions required to resolve any potential conflicts with other ground traffic prior to advising the pilot to contact ground control.

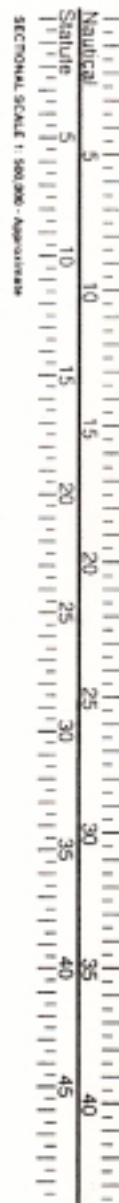
[2] A clearance from ATC to taxi to the ramp authorizes the aircraft to cross all runways and taxiway intersections. Pilots not familiar with the taxi route should request specific taxi instructions from ATC.

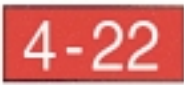
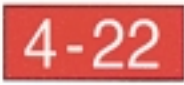
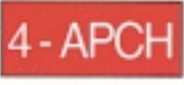







## GUIDE TO AIRFIELD SIGNS (U.S.)

SIGN and LOCATION

PILOT ACTION or SIGN PURPOSE



 On Taxiways at Intersection with a Runway	Controlled Airport - <b>Hold</b> unless ATC clearance has been received. Uncontrolled Airport - Proceed when <b>no</b> traffic conflict exists.
 Runway/Runway Intersection	Taxiing - Same action as above. Taking Off or Landing - Disregard unless a "Land, Hold Short" clearance has been accepted.
★  Taxiway in Runway Approach or Departure Area	Controlled Airport - Hold when instructed by ATC. Uncontrolled Airport - Proceed when no traffic conflict exists.
★  ILS Critical Area	Hold when approaches are being made with visibility less than 2 miles or ceiling less than 800 feet.
 Areas where Aircraft are Forbidden to Enter	Do not enter.
 Taxiway	Identifies taxiway on which aircraft is positioned.
 Runway	Identifies runway on which aircraft is positioned.
★  Edge of Protected Area for Runway	These signs are used on controlled airports to identify the boundary of the runway protected area. It is intended that pilots exiting this area would use this sign as a guide to judge when the aircraft is clear of the protected area.

### Notes:

1. See the *Aeronautical Information Manual* for additional information on airfield signs.
2. The signs shown on this guide comply with FAA standards. In some cases ICAO's proposed sign standards differ with FAA's. The asterisk (\*) in the left column denotes these cases so the pilot can be aware that some differences may be encountered outside the United States.



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